ABSTRACT OF THE DISCLOSURE

A combustor assembly including an injector element able to inject and substantially mix a fuel with a vitiated air stream, so that the substantially all of the fuel injected into the vitiated air stream reaches an auto ignition temperature before it combusts. Generally, the injector element expels the fuel from the injector orifice at a rate, a velocity, a trajectory, or a flow geometry able to mix the fuel with the vitiated air. Generally, the fuel is able to mix with the vitiated air in such a manner that the fuel is substantially mixed and no substantially high or substantially low concentrations of fuel exist in the air stream at the time that the fuel reaches the auto ignition temperature.